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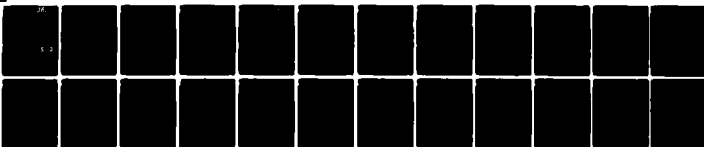
CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL F/G 5/9
DIRECTORY OF CONSTRUCTION ENGINEERING PROGRAMS IN ORGANIZATION --ETC(U)
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(12) LEVEL II

DIRECTORY OF CONSTRUCTION ENGINEERING PROGRAMS
IN
ORGANIZATION AND MANAGEMENT OF CONSTRUCTION

PREPARED BY
CIB W-65 COMMISSION
ON
ORGANIZATION AND MANAGEMENT OF CONSTRUCTION

DTIC
ELECTE
MAY 14 1980
S B D

DEPARTMENT OF THE ARMY
CONSTRUCTION ENGINEERING RESEARCH LABORATORY
CHAMPAIGN, ILLINOIS USA

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A084188	3. RECIPIENT'S CATALOG NUMBER
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7. AUTHOR(s)		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. ARMY CONSTRUCTION ENGINEERING RESEARCH LABORATORY P.O. Box 4005, Champaign, IL 61820		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
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19. KEY WORDS (Continue on reverse side if necessary and identify by block number) construction management universities directories		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This first edition of a directory of education programs in engineering and management covers 20 programs in 11 countries. CIB Working Commission 65, Organization and Management of Construction, plans to update the directory periodically.		

405279

J. H. H.

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

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PROLOGUE

The Working Commission W-65, Organization and Management of Construction, (OMC) consists of experts who are addressing research contained in the terms of reference which reads in part: "To develop effectiveness calculations and techniques for evaluating singularly and collectively various organizational forms utilized in the planning, architecture, engineering, construction and for industrialized construction." A major aspect of the program is to effect the transfer of the research into professional practice; a vital mechanism in this transfer are the educational programs in engineering and management.

To facilitate the interchange among experts in education for OMC the Commission recommended the publication of a directory of education programs. This is the first edition of the directory. W-65 intends to update this directory on a regular basis. Information on additional educational programs is welcomed; it should be forwarded to Dr. V. Handa of the Waterloo Construction Council, University of Waterloo, Waterloo, Ontario, CANADA N2L 3G1. Additional copies of the directory are available at a modest charge from the National Technical Information Service (NTIS), Springfield, VA 22151, USA.

Information on W-65 can be obtained by contacting undersigned at the US Army Construction Engineering Research Laboratory, P. O. Box 4005, Champaign, IL 61820, USA. Information on CIB can be obtained by contacting Secretary General, CIB, Postbus 20704, Weena 704, Rotterdam, HOLLAND.

25 April 1980
Champaign, Illinois, USA

L. R. SHAFFER
Coordinator, W-65

ACCESSION for	
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Waterloo Construction Council

Department of Civil Engineering
University of Waterloo
Waterloo, Ontario, Canada
N2L 3G1



Telephone: (519) 885-1211 ext. 2289

March 19, 1980

CIB - Working Commission 65 - Organization and Management of Construction

CONSTRUCTION EDUCATION SURVEY - March 1980

There were 20 replies to the questionnaire sent out in April/May 1979. Three were from the Republic of South Africa, three from Asia - Turkey (2) and Israel, one from Australia, eight from North America - USA (5), Canada (3) and five from Europe - England, Holland, Germany, Switzerland and Denmark. On the basis of the responses it can be seen that the earliest undergraduate programme was established in 1930 at Munich with Florida (1935) closely behind. A fair number of the graduate programmes were established between the late sixties and the early seventies. Most of the research is supported either by government or other means. Industry support for scholarships (6 responses) is better than for research. Their support for administration is 100% in South Africa and in varying amounts elsewhere (3 indicated no direct industry support). Nearly all responses indicated industry liaison and the participation of industry speakers and visitors in their programme, indicating an attempt at keeping the programmes en current. It is something that should be encouraged and probably expanded. The academic curriculum appears to be somewhat similar if liberal allowance is made for interpreting course titles. A lot of the research appears to be concentrated on management and organizational control techniques, indicating that the problems are the same across the different parts of the world.

My appreciation and thanks to all the respondees for their effort in this first venture at establishing some sort of a base for interchange amongst the construction academic fraternity.

V.K. Handa, Professor
Department of Civil Engineering
University of Waterloo
Waterloo, Ontario N2L 3G1
Canada

VKH:pl

April 5, 1979

At the request of the educators attending the 2nd CIB Symposium on Construction Organization and Management held in Hai fa last November, the W-65 Commission undertook to act as a clearing house to gather, collate and DISSEMINATE information on construction education and training programmes. The University of Waterloo Construction Programme has agreed to act as the co-ordinator in this effort.

This is to request your co-operation in this venture. In order to avoid any misinterpretation of information no editing will be done at Waterloo. To expedite matters and minimize effort on your report, the response is limited to one page. Your help in answering the questionnaire will be most appreciated.

Dr. L.R. Shaffer, Co-ordinator of the W-65 Commission, has kindly agreed to disseminate the information to all the respondees after its processing at Waterloo.

Please type or print your response in black ink, as the forms will be reduced and reproduced for distribution. Return the completed questionnaire to:

Prof. V.K. Handa
Department of Civil Engineering
University of Waterloo
Waterloo, Ontario N2L 3G1
Canada

Please forward the extra copies enclosed to other institutions who have construction programmes in your area. The following have already been requested directly by us.

April 5, 1979

3. Organizational and Legal Responsibilities in Construction
The Practice of Management by Dycker, (Harper & Row) Canadian Building Contracts
4. Administration of Construction Projects
5. Construction Methods and Equipment Publication #4 and 6 below
6. Construction Planning (Operations Research)

Name of Institution University of Waterloo
Faculty/School Department of Civil Engineering, Construction Management Group
Address Waterloo, Ontario Canada N2L 3G1

Name, Title of Contact Dr. V. K. Handa, P. Eng.
Name, Title of Respondent

Programme/s offered	Degree Bachelor	Degree Master	Degree Ph.D.	Non-deg. Diploma	Non-deg. Certificate	Part of Programme Specify	Other:
Year Programme Established	1977	1971				1961 /	
Duration (years) - length of Programme	12 months	8 months				one course senior year undergraduate	
Availability (Indicate current student nos)	2						
Part-time	10	1					
Full-time							
Other (specify)							
National	10						
Foreign	2						
Admission Requirements	undergraduate honours						
Course Requirements - list of courses needed & thesis/project	degree 73% average 8 + project						
Scholarship, Fellowship	6						
Bursaries, etc. available	Yes - varying amounts						
	Yes						

Language of Instruction	English	National	68	Foreign	3
Total Numbers of Students Graduated					
Funding: (Indicate %)					
Government	x				
Industry	100%				
Other (specify)	x				
Staff Numbers: Totals (Indicate #s)					
Faculty					
Full Time (3)					
Part time (3)					
Industry, Instructors, Speakers (29)					
Financial Administrative (x)					
Curriculum Development x					
Scholarship, Bursaries, etc(x)					
Overseeing Body Industry Liaison (x)					
Course, Titles, Descriptions					
Indicate Text Title (if any)					

1. Labour Relations in the Construction Industry Publication # 142 below

2. Construction Economics. Accounting and Finance. Finance for the Non Financial Manager by H. T. Spiro (Wiley, Interscience) Const. Accounting (continued)
A Financial Management by Coombs and Palmer (McGraw Hill).

Educational Programme Objectives:

Provide a vehicle by which the performance of the Construction Industry is improved. The objectives are to: 1) transmit existing management techniques through research in order that they can be applied to construction, and 2) educate professionals on the application of these techniques towards resolving the unsolved problems of construction. Organizational (Applied) (x) Engineering (Hard) (x) (Please tick)

Research Funding

(Indicate source & amount (US \$)) National Research Council, Industry Contracts 8000 - 10,000 per year 3000 - 4000

Describe Nature/objectives of Research

Organization, Management, some operations research techniques, labour relations, safety. Attempts being made to increase direct input from industry with respect to research objectives and needs.

Research Facilities

(Describe briefly if any)

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print)

1. Allen, P. M. and Eayrs, M. H., Labour Relations for Construction Employers in Ontario 1972, (\$5.00) + postage and handling
2. Allen, P. M., A Study Guide to Employee Relations 1973 (\$3.00)
3. Campbell, D. H., Construction Equipment Management, 1974 (\$5.00)
4. Campbell, D. H. Craning Principles, 1974 (\$5.00)
5. Equity in Construction Contracts and Claims, Proceedings of Seminar May 1976 (\$8.00)
6. Campbell, D. H., Construction Equipment Management 1978 (\$9.75)

(x) Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

3.
4.
5.
6.

Name of Institution
Faculty/School
Address
Name, Title of Contact
Name, Title of Respondent

Bradley University
1501 W. Bradley Avenue
Peoria, IL 61625 U.S.A.
Attn: Department of Construction
M. I. Guest, Professor, Chairman, Dept. of Construction

Programme/s offered
Degree
Bachelor
Master
Ph.D.
Diploma
Certificate
Programme Specify
Other:

Year Programme Established
Duration (years) - length of
Programme
Ca. 1958
4 yrs.
Availability (Indicate current
student nos) Part-time
Full-time
Other (specify)
National Year 1978-79
Foreign
Admission Requirements
High School graduate, ACT Composite 20min, SAT 975
combined (min). See University catalog for details.
Course Requirements - list of
Minima: Construction 50 sem hrs, Management 14 sem hrs,
course needed & thesis/project
Math/Science 24 sem hrs, Humanities/Social Science
23 sem hrs; electives to add to 124 sem hrs. minimum
Scholarship, Fellowship
Bursaries, etc. available
Limited; administered by Financial Aids Office

Language of Instruction
English
Total Numbers of Students Graduated since 1966
National 335
Foreign 2

Funding:
(Indicate %)
Government
Industry
Other (specify)
----- 100% Student fees, endowments, etc.

Staff Numbers: Totals
(Indicate #s)
Faculty Full Time (4)
Part time (1)
Industry, Instructors, Speakers ()

Industry Input
(Please tick)
Financial Administrative ()
Curriculum Development (x)
Scholarship, Bursaries, etc(x)
Overseeing Body Industry Liaison (x)

Course, Titles, Descriptions
Indicate Text Title (if any)
1. See attached lists. Insufficient room provided to
describe 18 Construction courses plus other
course requirements for a BS degree.

2.

(continued)

Educational Programme Objectives: To provide the basic (BS) professional degree for
the Constructor. To this end the curriculum provides the balanced cultural,
technical, managerial and professional foundation necessary for a career
and for further individual development.

Research None (x) Organizational (Applied) () Engineering (Hard) ()
(Please tick)

Research Funding
(Indicate source & amount (US \$)) None

Describe Nature/objectives of Research None

Research Facilities
(Describe briefly if any) None

Publications by Programme - only those
that can be purchased (do not list articles
in publications or out of print)

Adrian, James J., Quantitative Methods in Construction Management,
Elsevier, 1973
Adrian, James J., Business Practices for Construction Management,
Elsevier, 1976
Adrian, James J., Construction Accounting, Reston, 1979

() Please check if interested in having above listed in National Technical Information Service
for world wide distribution. (Separate instructions will follow on procedures for submittal).

BRADLEY UNIVERSITY
College of Engineering and Technology
CONSTRUCTION CURRICULUM (Typical)

Junior Year

First Semester	Hours
CON 342 Construction Equipment and Methods	3
CON 368 Advanced Environmental Technologies in Construction	3
CON 372 Materials and Methods of Construction III	3
*EFE 300-Level Advanced Writing	3
Approved Management Elective	3
	15

Second Semester

CON 310 Construction History	3
CON 392 Construction Management	3
C/E 320 Introductory Soil Mechanics	2
Accounting (ATG 157 or ATG 300)	2-3
Approved Management Electives	6
	16-17

Senior Year

First Semester

CON 486 Structures I	4
CON 492 Construction Contracts	2
BMA 352 Business Management	3
Approved Construction, Management, Mathematics or Science Electives	6
	15

Second Semester

CON 408 Senior Seminar	2
CON 409 Structures II	4
CON 494 Construction Practice	3
CON 496 Construction Estimating	3
Approved Elective	3
	15

Note: This typical program will be modified as necessary for those admitted with academic deficiencies; such students will of necessity require additional semester hours and time for completion.

Possible modifications in cooperation with other departments to meet special career needs:

1. Emphasis on Electrical Construction Management
2. Emphasis on Mechanical Construction Management
3. Emphasis on Heavy Construction

* All-University requirement

4/78

BRADLEY UNIVERSITY
College of Engineering and Technology
CONSTRUCTION CURRICULUM (Typical)

Freshman Year

First Semester	Hours
CON 100 Introduction to Construction	2
*EFE 101 Composition and Rhetoric	3
MTH 121 Unified Calculus I	4
PSY 103 Psychology	3
Approved Humanities or Social Science Elective	3
	15

Second Semester

CON 132 Construction Graphics	3
*SPT 103 Basic Speech	3
ECON 100 Economics	3
PHY 104 Foundations of Modern Physics	3
MTH 122 Unified Calculus II	4
	16

Sophomore Year

First Semester

CON 270 Materials and Methods of Construction I	3
C/E 206 Surveying	4
TSC 206 Statics	3
ONS 104 Introductory Fortran Programming	3
Approved Humanities or Social Science Elective	3
	16

Second Semester

CON 262 Mechanical and Electrical Systems for Buildings	3
CON 272 Materials and Methods of Construction II	3
TSC 307 Strength of Materials	4
Approved Construction, Management, Mathematics or Science Electives	6
	16

* All-University requirement

10/77

April 5, 1979

Name of Institution University of Florida
Faculty/School School of Building Construction
Address Gainesville, Florida 32611 USA

Name, Title of Contact Don A. Halperin, Director
Name, Title of Responder Same

Programme/s offered Degree Degree Degree Non-deg. Non-deg. Part of
Bachelor Master Ph.D. Diploma Certificate Programme Specify

Year Programme Established 1935 1957

Duration (years) - length of Programme 4 1

Availability (Indicate current student nos) Part-time Full-time Equivalent - 35 25

Other (specify)

National Year Foreign

60
Taking
Electives

Admission Requirements 2 yrs. college for Bach.; "B" average + 1000 graduate record
Course Requirements - list of exam plus degree in Bus. Ad., Building Const., Civil Eng. or
courses needed & thesis/project See attached sheets M.S.

Scholarship, Fellowship Several
Bursaries, etc. available Scholarships, Teaching assistants

Language of Instruction English

Total Numbers of Students Graduated

National 2300+ Foreign 30+

Funding: Government Industry Other (specify)

Administration Scholarship Research
100 85 15 (Alumni)

Staff Numbers: Totals (Indicate #s)

Faculty Full Time (17) Part time (6) Industry, Instructors, Speakers (4)

Industry Input (Please tick)

Financial Administrative () Curriculum Development
Scholarship, Bursaries, etc(X) Oversees Body Industry Liaison ()

Course, Titles, Descriptions
Indicate Text Title (if any)

Whatever that means

See attached sheets

(continued)

Educational Programme Objectives: To teach youngsters to think within the confines
of the discipline of construction

Research (Please tick) Organizational (Applied) () Engineering (Hard) ()
Difficult, in fact

Research Funding (Indicate source & amount (US \$))

Describe Nature/objectives of Research

Teaching to us seems far more important

Research Facilities
Describe briefly if any

Publications by Programme - only those
that can be purchased (do not list articles
in publications or out of print)

X) Please check if interested in having above listed in National Technical Information Service
for world wide distribution. (Separate instructions will follow on procedures for submittal).

SCHOOL OF BUILDING CONSTRUCTION
University of Florida

GRADUATE STUDIES

Advanced Construction Techniques

Temporary Structures

Construction Methods Improvement

Construction Methods Improvement

Survey of Construction Techniques

Construction Cost Analysis

Labor Problems

Special Studies in Construction (Combined Structures)

Special Studies in Construction (Construction Uses of Computers)

HI-Rise Construction

Construction Management

Human Factors in Construction

Advanced CPM

Construction Management Accounting

Bidding Strategy

Earthwork

Philosophy of Structures

SCHOOL OF BUILDING CONSTRUCTION
University of Florida

Undergraduate Students

Construction Materials

Construction Mechanics I

Construction Techniques I

Construction Techniques II

Construction Techniques III

Construction Drawing

Construction Methods Laboratory

Construction Mechanics II

Structures I

Structures II

Quantity Surveying

History of Construction

Computers in Construction

Construction Techniques IV

Structures III

Temporary Structures

Environmental Technology I

Environmental Technology III

Environmental Technology II

Construction Estimating

Cost Estimation Analysis

Construction Management I

Construction Management III

Construction Labor

Construction Planning and Control

Construction Management II

Site Development

April 5, 1979

A Construction Management Programme is run annually at:

Name of Institution UNIVERSITY OF CAPE TOWN

Faculty/School

Address RONDEBOSCH, CAPE. R.S.A.

Name, Title of Contact MR. M.C. VORSTER

Name, Title of Respondee CO-ORDINATOR

Programme/s offered Degree Bachelor Degree Master Ph.D. Non-deg. Diploma Certificate Programme Specify

Year Programme Established
Duration (years) - length of Programme

Availability (Indicate current student nos)
Part-time
Full-time
Other (specify)

National Year
Foreign

Admission Requirements GRADUATE WITH 5 YEARS PLUS MANAGEMENT EXPERIENCE.

Course Requirements - list of courses needed & thesis/project
Scholarship, Fellowship
Bursaries, et c. available

Language of Instruction ENGLISH

Total Numbers of Students Graduated

National 90 Foreign

Funding: Government
(Indicate %)
Industry
Other (specify)

Administration Scholarship Research

100%

Staff Numbers: Totals (Indicate #s)
Faculty Full Time () Part time (1) Industry, Instructors, Speakers (7)

Industry Input

(Please tick)

Course, Titles, Descriptions
Indicate Text Title (if any)

Financial Administrative (✓) Curriculum Development
Scholarship, Bursaries, etc(✓) Overseeing Body Industry Liaison (✓)

CONSTRUCTION MANAGEMENT COVERS:

1. OPERATION ANALYSIS FOR WORK IMPROVEMENT

2. PROJECT PLANNING AND CONTROL

(continued)

3. CONTRACT LAW AND INSURANCE.

4. THE HUMAN FACTOR.

5. MANAGEMENT ACCOUNTING AND FINANCE.

6. MEASUREMENT AND VALUATION.

Educational Programme Objectives:

To provide professional management training to those with a purely technical background.

Research (Please tick)

Organizational (Applied) () Engineering (Hard) ()

Research Funding

(Indicate source & amount (US \$))

Describe Nature/objectives of Research

Research Facilities

(Describe briefly if any)

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print)

() Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

April 5, 1979

A CONSTRUCTION MANAGEMENT PROGRAMME IS RUN ANNUALLY AT:

Name of Institution UNIVERSITY OF PRETORIA
Faculty/School
Address PRETORIA, 0002, R.S.A.

Name, Title of Contact MR. F. FOURIE
Name, Title of Responder CO-ORDINATOR

Programme/s offered Degree Bachelor Degree Master Ph.D. Non-deg. Diploma Certificate Non-deg. Part of Other:
Programme Specify

Year Programme Established
Duration (years) - length of
Programme

1976
CMP
6 WEEKS
(with examination, included
as a credit for the B.Sc.
(Hons.) in Construction
Management)

Availability (Indicate current
student nos) Part-time
Full-time
Other (specify)

1978
55

National Year
Foreign

PRETORIA

Admission Requirements Graduate with + 5 years experience.

Course Requirements - list of
courses needed & their project

Scholarship, Fellowship
Bursaries, etc. available

Language of Instruction ENGLISH

Total Numbers of Students Graduated

Attended since 1976

National 66 Foreign

Administration Scholarship Research

Funding: Government
(Indicate %)

Industry
Other (specify)

100%

Staff Numbers: Totals
(Indicate #, \$)

Faculty Full Time () Part time (2) Industry, Instructors, Speakers (5)

Industry Input
(Please tick)

Financial Administrative (✓) Curriculum Development
Scholarship, Bursaries, etc (✓) Overseeing Body Industry Liaison (✓)

Course, Titles, Descriptions
Indicate Text Title (if any)

CONSTRUCTION MANAGEMENT PROGRAMME COVERS:

1. FINANCIAL MANAGEMENT

2. PROJECT PLANNING AND CONTROL

(continued)

3. CONTRACT LAW
4. ENGINEERING ECONOMY
5. OPERATIONS ANALYSIS
6. CONSTRUCTION PLANT

Educational Programme Objectives:

To provide professional management training to those with a purely technical background.

Research
(Please tick)

Organizational (Applied) () Engineering (Hard) ()

Research Funding
(Indicate source & amount (US \$))

Describe Nature/objectives of Research

Research Facilities
(Describe briefly if any)

Publications by Programme - only those
that can be purchased (do not list articles
in publications or out of print)

() Please check if interested in having above listed in National Technical Information Service
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April 5, 1979

-2-

3. THE CONTRACT (LEGAL ASPECTS)
 4. COSTING AND ACCOUNTING
 5. EARTHMOVING METHODS AND EQUIPMENT
 6.

Educational Programme Objectives:

Research (Please tick) Organizational (Applied) () Engineering (Hard) ()

Research Funding
(Indicate source & amount (US \$))

Describe Nature/objectives of Research

Research Facilities
(Describe briefly if any)

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print)

() Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

Name of Institution CIVIL ENGINEERING INDUSTRY TRAINING BOARD

Faculty/School PRIVATE BAG 1 GARDENVIEW 2047

Address REPUBLIC OF SOUTH AFRICA

Name, Title of Contact MR. R. G. SFAKIANOS

Name, Title of Respondee DIRECTOR OF TRAINING

Programme/s offered Degree Degree Non-deg. Non-deg. Part of Other:
 Bachelor Master Ph.D. Diploma Certificate Programme Specify

Year Programme Established 1978
 Duration (years) - length of 1 week
 Programme

Availability (Indicate current
 student nos) Part-time
 Full-time

Other (specify) + 25 per course

National Year
 Foreign

Admission Requirements CONSTRUCTION EXPERIENCE IN SITE MANAGEMENT LEVEL - BETWEEN 2 TO 5 YEARS.
 Course Requirements - list of
 courses needed & thesis/project

Scholarship, Fellowship
 Bursaries, etc. available

Language of Instruction

Total Numbers of Students Graduated National + 170 Foreign

Funding: Government Administration Scholarship Research
 (Indicate %)

Industry 100%
 Other (specify)

Staff Numbers: Totals Faculty Full Time () Part time (2) Industry, Instructors, Speakers &
 (Indicate #s)

Industry Input Financial Administrative (X) Curriculum Development
 (Please tick) Scholarship, Bursaries, etc () Overseeing Body Industry Liaison (X)

Course, Titles, Descriptions
 Indicate Text Title (if any)

1. METHOD STUDY

2. PROJECT PLANNING & RESOURCE MANAGEMENT

(continued)

6

3. DRAWING AND DESIGN
4. BUSINESS MANAGEMENT FOUNDATION
5. LIBERAL ARTS AND SCIENCES
6. ELECTIVES

Name of Institution PRATT INSTITUTE
 Faculty/School CONSTRUCTION MANAGEMENT PROGRAM / SCHOOL OF ARCHITECTURE
 Address HIGGINS HALL, BROOKLYN, NEW YORK 11205
 Name, Title of Contact NATHAN STREITMAN, CHAIRMAN, CONSTR. MGMT.
 Name, Title of Respondent " "

Programme/s offered Degree Degree Non-deg. Part of Other:
 Master Ph.D. Diploma Certificate Programme Specify

Year Programme Established 1945
 Duration (years) - length of FOUR
 Programme
 Availability (Indicate current student nos) Part-time 64
 Full-time 28
 Other (specify)
 National Year 75 PERCENT U.S.
 Foreign 25 PERCENT FOREIGN
 Admission Requirements HIGH SCHOOL DIPLOMA OR EQUAL.
 Course Requirements - list of 132 CREDITS INCLUDING THESIS REQUIRED
 courses needed & thesis/project
 Scholarship, Fellowship YES
 Bursaries, etc. available

Educational Programme Objectives: TO PROVIDE A LIBERAL AND PROFESSIONAL EDUCATION TO STUDENTS SEEKING A MANAGEMENT CAREER IN CONSTRUCTION FROM THE CONCEPT STAGES THROUGH TO COMPLETION OF CONSTRUCTION.
 Research (Please tick)
 Organizational (Applied) ☒ Engineering (Hard) ()

Research Funding
 (Indicate source & amount (US \$)) 0

Describe Nature/objectives of Research ---

Research Facilities
 (Describe briefly if any) ---

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print) ---

☒ Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

Language of Instruction ENGLISH
 Total Numbers of Students Graduated National 400 Foreign 100
 Funding: Government 0% Administration 0% Scholarship 10% Research 0%
 Industry 0% 10% 0%
 Other (specify) STUDENT \$ 100% 80% 0%
 Staff Numbers: Totals Faculty Full Time () Part time (20) Industry, Instructors, Speakers (10)
 (Indicate #s)
 Industry Input Financial Administrative ☒ Curriculum Development
 (Please tick) Scholarship, Bursaries, etc ☒ Overseeing Body Industry Liaison ()
 Course, Titles, Descriptions SUBJECT AREAS FOR DEGREE PROGRAM
 Indicate Text Title (if any) 1. CONSTRUCTION MANAGEMENT
 2. CONSTRUCTION THEORY

(continued)

7. Construction Labour Economics and Labour Relations
8. Analysis in Real Estate Development
9. Legal Problems in Construction
10. Legal Regulation of the Building Process
11. Seminar in Construction Engineering and Management
12. Project and Company Organizations

Name of Institution Massachusetts Institute of Technology
Faculty/School Dept. of Civil Engineering, Room 1-253
Address Cambridge, MA 02139

Name, Title of Contact Robert D. Logcher
Name, Title of Responder Professor of Civil Engineering

Programme/s offered Degree Bachelor Master Ph.D. Diploma Non-deg. Certificate Part of Programme Specify Other: Civil Engr.

Year Programme Established 1978 1972 1977 - - - 1974
Duration (years) - length of 4 1 3-5 2-3
Programme

Availability /Indicate current student nos)

Part-time 6 - - -

Full-time 6 30 4 1

Other (specify) 6 19 1 0

National Year 1978-79 0 11 3 1

Foreign

Admission Requirements

Course Requirements - list of (See attached)

courses needed & thesis/project

Scholarship, Fellowship Rarely available, graduate assistantships support about 35% of

Bursaries, etc. available graduate students

Language of Instruction English

Total Numbers of Students Graduated National 52 Foreign 28

Funding: Government

(Indicate %) Industry 0 0 95

Other (specify) 0 0 0

Staff Numbers: Totals Faculty Full Time (35) Part time (1) Industry, Instructors, Speakers (-)

(Indicate #s)

Industry Input Financial Administrative () Curriculum Development

(Please tick) Scholarship, Bursaries, etc () Oversees Body Industry Liaison ()

Course, Titles, Descriptions All Graduate Courses:

Indicate Text Title (if any)

1. Introduction to Project Management

2. Construction of Buildings

3. Project Organization and Control

4.65. Modelling of Construction Processes I & II

6. Resources & Markets in Construction

Educational Programme Objectives: - Treat entire development process

- Develop & introduce new techniques & approaches to technical problem and decision processes for design & constr. processes
- Train new leaders to work for owners, designers & contractors

Research (Please tick)

Organizational (Applied) () Engineering (Hard) ()

Research Funding

(Indicate source & amount (US \$)) U.S. Dept. of Transportation \$240,000

U.S. Dept. of Labor 150,000

U.S. Dept. of H.U.D. 21,000

U.S. Dept. of Research 281,000

Describe Nature/objectives of Research

Research Facilities

(Describe briefly if any)

- Extensive materials, soils and rock mechanics laboratories
- Extensive computational facilities, including interactive graphics.

Publications by Programme - only those -COSTHOD: A Cost Modeling System-User's Manual, R77-15 that can be purchased (do not list articles -Analysis of Component Interfaces and Effect on Construction Coordination, MIT Department of Civil Engineering, R77-42.

-Productivity Improvement Study-Summary Cost Report, Dec. 1977, R77-43.

-Summary Report-Project for Innovation and Improvement in Housing, Jan. 1978.

-The Effect of Technology on Scheduling: A Comparative Study of U.S. and Israeli Residential Construction, R78-2.

-An Approach to Cost Estimating for Planning and Design-Part I: System Concepts and Specifications, March 1978, Technical Report 062. IBM Israel.

-Burns, R.H., Levitt, R.E. and Logcher, R.D., Cooperative Control Systems for Improving Construction Productivity, No. 630, June 1978.

() Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

(continued)

Advanced Cost and Value Engineering
Construction Planning and Scheduling
Construction Labor Management
Advanced Building Estimating
Conceptual Estimating

Name of Institution University of Southern California
Faculty/School Civil Engineering
Address Dept of Civil Engineering
University of Southern California
Los Angeles California 90089
Name, Title of Contact Prof. E. L. Bidwell
Name, Title of Respondent John Bidwell

Programme/s offered Bachelor's Degree Non-deg. Diploma Certificate Programme Specify
Degree Master Ph.D. Non-deg. Part of Other:

Year Programme Established 1970 1970
Duration (years) - length of 15 units 30 units 1 units is 3 hrs of class/week for 15 hrs
Programme

Availability (Indicate current student nos)
Part-time 5
Full-time 15
Other (specify) 15

National Year
Foreign

Admission Requirements Bachelor's degree & undergraduate average in any construction related administrative, design or technical science.

Course Requirements - list of 30 units of course work beyond the Bachelor's degree courses needed & thesis/project

Scholarship, Fellowship Bursaries, etc. available

Language of Instruction English
Total Numbers of Students Graduated

National ~ 30 Foreign ~ 30

Funding: Government
(Indicate %) Industry
Other (specify) USC is a Private Institution 10%
Staff Numbers: Totals Faculty Full Time (1) Part Time (10) Industry, Instructors, Speakers ()
(Indicate %)

Industry Input (Please tick)
Course, Titles, Descriptions
Indicate Text Title (if any)

Financial Administrative () Curriculum Development
Scholarship, Bursaries, etc () Overseeing Body Industry Liaison ()
Contracts and Specifications
Construction Contracting
General Construction Estimating
Construction Methods and Equipment
Functions of the Constructor
Construction Accounting and Finance
Heavy Construction Estimating
Building Design Processes

(continued)

Educational Programme Objectives:

To educate engineers for responsible careers in the construction industry

Research (Please tick) Organizational (Applied) () Engineering (Hard) ()

Research Funding (Indicate source & amount (US \$)) Industry - \$100,000 per last 5 years

Describe Nature/objectives of Research

Use of CR & work improvement techniques in construction

Research Facilities (Describe briefly if any)

No special facilities

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print)

() Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

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April 5, 1979

9

Name of Institution Middle East Technical University
Faculty/School Faculty of Engineering, Department of Civil Engineering,
Address Division of Construction Strategy., Ankara, TURKEY

Name, Title of Contact Dr. D. Arslan, Asst. Prof. of Civil Eng., Head of the Division
Name, Title of Responder of Construction Strategy

Programme/s offered Degree Degree Non-deg. Non-deg. Part of Other
Bachelor Master Ph.D. Diploma Certificate Programme Specify

Year Programme Established 1967

Duration (years) - length of Programme 2 to 3.5

Availability (Indicate current student nos) Part-time Full-time Other (specify) 11

National Year All nationals

Admission Requirements 2.67 Min. cumulative grade point average

Course Requirements - list of courses needed & thesis/project All B.Sc. courses and projects

Scholarship, Fellowship Bursaries, etc. available Yes

Language of Instruction English

Total Numbers of Students Graduated

National 10 Foreign 1

Funding: Government Industry Other (specify)

Staff Numbers: Totals (Indicate #s)

Industry Input (Please tick)

Course, Titles, Descriptions Indicate Text Title (if any)

Financial Administrative () Curriculum Development Scholarship, Bursaries, etc (X) Overseeing Body Industry Liaison (X)

1. CE 231, Engineering, Economy (At undergraduate level)

2. CE 432, Construction Engineering and Management (At undergraduate level)

(continued)

3. CE 434, Construction Planning

4. CE 436, Forms and Scaffolding for Reinforced Concrete Structures.

5. CE 403, Construction Site Techniques.

6. CE 507, Application of Operational Research Methods Construction Management Problems.

7. CE 541, Introduction to Tunnel Construction.

Educational Programme Objectives: To produce Civil Engineers who are aware of the problems in the industry and who are well equipped for higher managerial posts.

Research (Please tick)

Organizational (Applied) X

Engineering (Hard) X

Research Funding (Indicate source & amount (US \$) None

Describe Nature/Objectives of Research

Research is of the "Applied" type. Research projects generally bring a solution to a specific problem encountered at company level or industry level. The objective is to increase efficiency by the use of modern methods or adequate measures whenever problems arise.

Research Facilities (Describe briefly if any) None

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print)

- The Application of Construction Planning, D. Sargu, METU, 1975

- Laws and Contracts in Construction, D. Sargu, METU, 1975

(X) Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submit).

3. **System analysis**
4. **Industrialized Building Systems**
5. **Building Law and Codes**
6. **Human Factors and Labour Relations**

Educational Programme Objectives:

Research (Please tick)	Organizational (Applied)	Engineering (Hard)
Research Funding (Indicate source & amount (US \$))	approx. 20,000,- / year	
Describe Nature/objectives of Research		
Research Facilities (Describe briefly if any)		All research facilities of the Technon

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print)

In hebrew only

() Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

Name of Institution	Faculty/School	Name, Title of Contact	Name, Title of Addressee	Programme/s offered	Year Programme Established	Duration (years) - length of Programme	Availability - Indicate current student nos	Part-time	Full-time	Other (specify)	National	Year	Foreign	Admission Requirements	Course Requirements - list of courses needed & thesis/project	Scholarship, Fellowship	Bursaries, etc. available	Language of Instruction	Total Numbers of Students Graduated	Hebrew	National	40	Foreign	---	Funding: Government: (Indicate %)	Industry	Other (specify)	Staff Numbers: Totals (Indicate #s)	Industry Input (Please tick)	Course, Titles, Descriptions	Indicate Text Title (if any)		
TECHNION - Israel Institute of Technology	Faculty of Civil Engineering	Technion City, Haifa 32-000, Israel	Division for Construction Management	1. Prof. S. Pe'er 2. Prof. D. Armon	1970	2	20	5	---	100	Nat.	3	M.Sc.	10 + theses	3 + theses	3 - 8	yes	yes	Hebrew	National	40	Foreign	---	Administration	Scholarship	Research	No separate funding	Faculty Full Time (4)	Part Time (5)	Industry, Instructors, Speakers (6)	Financial Administrative () Curriculum Development Scholarship, Bursaries, etc () Overseeing Body Industry Liaison ()	1. Building Economy	2. Cost estimating and control

(continued)

-7-

PROJECT ORGANISATION

4. Text "Project Organisatie"
FUNCTIONAL DESIGNING OR FACILITIES

5. Text "Functioneel ontwerpen"
ENGINEERING DESIGNING METHODS

6. **SYSTEM DYNAMICS**
Text "System Dynamics"

Educational Programme Objectives: The construction option provides knowledge and working skills for the construction, organisation and management of building- and civil engineering projects.

Research
(Please tick)

Research Funding
(Indicate source & amount (US \$)
est. government funding of \$ 90,000, --- p.u.

Describe Nature/objectives of Research

- 1) Planning of the building process
- 2) Construction company-designer integration
- 3) Pre design of industrial facilities
- 4) Computer aided civil engineering design

Research Facilities
(Describe briefly if any)

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print) Test books of courses , thru 6 (in Dutch)

Publications by Programme - only those

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print) Test books of courses , thru 6 (in Dutch)

Funding: Indicate %	Government	100%	
Industry	-	-	-
Other (specify)	-	-	-

Staff Numbers: Totals

Industry Input (Please tick)	Financial Administrative	Curriculum Development	Overseeing Body	Industry Liaison
Scholarship, bursaries, etc				
Providing Thesis Proj.				
Joint research				

() Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

9. The organisation of the building process
Text "De organisatie van het bouwen"

2. Costing of Civil Engineering Projects

(continued)

April 5, 1979 WATERLOO CONSTRUCTION
CHURCH

Name of Institution Department of Construction Management
Faculty, School The Technical University of Denmark
Address Build. 115, 2800 Lyngby (Copenhagen), Denmark, Europe

Name, Title of Contact AXEL GAARSLEV
Name, Title of Responder STEEN LICHTENBERG

Programme/s offered Degree / Degree Non-deg. Non-deg. Part of Other:
Bachelor Master Ph. D. Diploma Certificate Programme Specify

Year Programme Established 1967 1970
Duration (years) - length of 5-6 2-3
Programme

Availability (Indicate current student nos) abt. 100
Part-time 12 1
Full-time 12 2
Other (specify) 0 0

National Year 1978
Foreign

Admission Requirements 1) 2)

Course Requirements - list of courses needed & thesis/project
Scholarship, Fellowship
Bursaries, etc. available

1) High school diploma, 2) Masters Degree
Language of instruction Danish
Total Numbers of Students Graduated

Funding: (Indicate %)	Government	Industry	Other (specify)	National		Foreign	
				Administration	Scholarship	Scholarship	Research
				X	X	X	X

Staff Numbers: Totals (Indicate %s)
Faculty Full Time (6) Part time (2) Industry, Instructors, Speakers

Industry Input (Please tick)
Financial Administrative () Curriculum Development
Scholarship, Bursaries, etc () Overseeing Body Industry Liaison ()

Course, Titles, Descriptions
Indicate Text Title (if any)
1. Main Title (all): "Construction Management"
1. Basic

2. Production methods, Equipment

(continued)

3. Economy
4. Contracting, Estimating
5. Planning methods, implementation and control
6. Organizational sociology

Educational Programme Objectives:

Research (Please tick) Organizational Applied (X) Engineering (Hard) ()

Research Funding (Indicate source & amount (US \$) University and govern. funds equivalent To abt. four qualified persons.
Describe Nature/objectives of Research
Basic and applied research in the field of Construction Management

Research Facilities (Describe briefly if any)

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print)

() Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

April 5, 1979

Chair of Construction Management
 Technical University of Istanbul
 Faculty of Civil Engineering
 I.T.Ü., İnşaat Fakültesi, Yapı İşletme Kurumu, Tagkışla
 Istanbul / Turkey
 Name, Title of Contact
 Name, Title of Responder
 Prof. Dr.-Ing. V. Dogan Sörgüç

Programme/s offered Degree Degree Non-deg. Non-deg. Part of Other:
 Bachelor Master Ph.D. Diploma Certificate Programme Specify

Year Programme Established 1977 Planned^x 1977 Planned^{XX}
 Duration (years) - length of 3 Courses 1.5 Duration 1 year
 Programme in C.E. years depends on
 Availability (Indicate current and 1 semester
 student not) ~~Research~~ diploma-project
 Full-time 80 (attended courses above
 Other (specify) mentioned only)
 National Year 48 1979
 Foreign 5

Admission Requirements Prerequisite:
 "Construction Management II"
 Course Requirements - list of
 courses needed & thesis/project

Scholarship, Fellowship General scholarships
 Bursaries, etc. available available to C.E. students

Language of Instruction Turkish
 Total Numbers of Students Graduated National 7 Foreign
 (Students who have received B.S. degree
 in Construction Management)
 Funding: Government 100% Administration Scholarship Research
 (Indicate %) Industry 100% Negligible 100% Starting
 Other (specify)
 Staff Numbers: Totals Faculty Full Time (6) Part time (1) Industry, Instructors, Speakers (11)
 (Indicate %): (2 Prof., 4 Assistants)
 Industry Input Financial Administrative () Curriculum Development^x
 (Please tick) Scholarship, Bursaries, etc () Overseeing Body Industry Liaison^x)
 Course, Titles, Descriptions^x Planned development related with X and XX above
 Indicate Text Title (if any)

1. Introduction to construction equipment.

Description: See attached list

Text: "Yapı Makinaları" Prof. S. Ersoy (3 volumes)

2. Construction Management I

Description: See attached list

Text: Notes and various books in Turkish (continued)

3. Construction Management II
 Description: See attached list
4. Text: Various books in Turkish and in language of each
 student as his second language (mostly English)
- 5.
- 6.

Educational Programme Objectives: To-day's objective: Basic education of C.E. students in
 Construction Management and practical training in construction industry through diploma-
 project considering the subjects of the basic education.

Future objective: Training of managers and businessmen of the Construction Sector.

Research Organizational (Applied) (x) Engineering (Hard) ()
 (Please tick)

Research Funding Technical and Scientific Research Council of Turkey (1 project)
 (Indicate source & amount: /US \$) 4,000 US \$

Describe Nature/Objectives of Research Research works are being yet carried out for the
 acquisition of academic degrees (Ph.D.) and oriented to solve the practical problems
 of the construction sector and industry like developing cost control systems in Turkish
 conditions, revising safety regulations analysing accidents in sites, developing a
 uniform model of project analysis, cost and finance minimization etc.

Research Facilities Computer System Burroughs 3700

(Describe briefly if any)

Publications by Programme - only those
 that can be purchased (do not list articles
 in publications or out of print)

- Laws and Contracts in (Turkish) Construction
 Assoc. Prof. Dr.-Ing. V. Dogan Sörgüç
 Bookstore of the Middle East Technical University
 Ankara, Turkey (in English)

- Construction Equipment (3 Volumes - in Turkish
 Prof. Dr.-Ing. Sedat Ersoy

Bookstore of the Technical University of Istanbul
 - Project Management Techniques in Construction
 Prof. Dr.-Ing. V. Dogan Sörgüç

Technical University of Istanbul (in Turkish)
 listed in National Technical Information Service
 (x) Please check if interested in having above
 for world wide distribution. (Separate instructions will follow on procedures for submittal).

Note: For remarks X, XX, a see please: "Development of Construction Education

Programme in Turkey". Assoc. Prof. Dr. V. Dogan Sörgüç - CIB W-85 II. International

al Symposium on Organisation and Management in Construction. Technion (Haifa)

October 1978 (Vol V)

Name of Institution THE UNIVERSITY OF NEW SOUTH WALES
 Faculty/School FACULTY OF ENGINEERING, SCHOOL OF CIVIL ENGINEERING,
 Address DEPARTMENT OF ENGINEERING CONSTRUCTION AND MANAGEMENT,
 Box 1 P.O. KENSINGTON, N.S.W. 2033. AUSTRALIA
 Name, Title of Contact Professor Ronald W. WOODHEAD, Professor of Civil Engineering,
 Name, Title of Responder Head, Department of Engineering Construction and Management

Programme/s offered	Degree	Degree	Non-deg.	Part of	Other:
	Bachelor	Master	Ph.D.	Diploma	Certificate
Year Programme Established	1973	1964	1951	-	-
Duration (years) - length of	4 yrs	1 yr	3 yrs	-	-
Programme - Construction	(21%)	(50%)	(100%)	-	-
Availability (Indicate current student nos)	51	46	3	-	-
Part-time	420	-	-	-	-
Full-time	-	-	-	-	-
Other (specify)	-	-	-	-	-
National	-	-	-	-	-
Foreign	-	-	-	-	-
Admission Requirements	University First	Hons	First	Degree	Degree
Course Requirements - list of courses needed & thesis/project	see Faculty Handbooks				
Scholarship, Fellowship	NOT RECEIVED				
Bursaries, etc. available	NOT RECEIVED				

Language of Instruction	ENGLISH
Total Numbers of Students Graduated	National
Funding: Government	Administration
(Indicate %)	Industry
Other (specify)	Scholarship
Staff Numbers: Total Engin- (Indicate #s) eering Construction & Management	Full Time (9)
Industry Input	Part time (-)
(Please tick)	Industry, lecturers, Speakers (5)
Course, Titles, Descriptions	Financial Administrative () Curriculum Development
Indicate Text title (if any)	Scholarship, Bursaries, etc () Overseeing Body Industry Liaison (X)
	Not applicable - see Faculty Handbooks (enclosed)

(continued)

Educational Programme Objectives: An integrated continuous training programme over four years at the undergraduate level followed by one year of specialisation in various aspects of construction and management at the Masters Degree level

Research (Please tick) Organizational (Applied) (✓) Engineering (Hard) (✓)

Research Funding Australian Research Grants Committee
 (Indicate source & amount (US \$)) Two Projects (see below) \$72,000 U.S.

Describe Nature/Objectives of Research
 Project No. 1: (\$48,000) The Influence of Layout and Management of Policies on the Productivity of Material Flow Processes on Construction Sites. (Professor R.W. Woodhead)
 Project No. 2: (\$24,000) Factors Affecting Performance and Production of Modern Heavy Duty Blasthole Drills on Construction Sites. (Professor J.M. Antill and Mr. V. Summersby)

Research Facilities

(Describe briefly if any)

(a) Construction Assembly Laboratory with access to Heavy Structural Testing Bay.

(b) Construction Project Laboratory equipped as a planning and estimating library

(c) Simulated Field Exercises - various

Publications by Programme - only those

that can be purchased (do not list articles

in publications or out of print)

A.S.Hall and R.W. Woodhead. Frame Analysis, John Wiley & Sons, Inc., New York. 1st Edition 1961, Japanese edition 1966, 2nd edition 1967.

J.M. Antill and R.W. Woodhead, Critical Path Methods in Construction Practice, John Wiley & Sons, Inc., New York, 1st ed 1965, Spanish ed 1968, Portuguese Ed 1968, 2nd ed. 1970.

D.D. Meredith, K.W. Wong, R.W. Woodhead and R.H. Wortman, Design and Planning of Engineering Systems, Prentice-Hall Inc., New Jersey, 1972.

D.W. Halpin and R.W. Woodhead, CONSTRUCTO - A Heuristic Game for Construction Management, University of Illinois Press, 1973, Romanian trans 1973.

D.W. Halpin and R.W. Woodhead, Design of Construction and Process Operations, John Wiley & Sons Inc., N.Y., 1976.

(✓) Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submit/foll).

* J.M. Antill, Civil Engineering Management, Angus & Robertson, Sydney, 1st ed 1970, 2nd ed. (Metric) 1973

J.M. Antill and P.W.S. Ryan, Civil Engineering Construction, Angus & Robertson, Sydney, 1st ed 1957, 2nd ed 1965, 3rd ed 1967, 4th ed (Metric) 1974.

3. (Master's and Ph.D degrees are obtained by research rather than taught courses)

4.

5.

6.

Educational Programme Objectives: To produce graduates capable of improving standards in, and acceptable to, the building construction and services engineering industries.

Research (Please tick) Organizational (Applied) (✓) Engineering (Hard) (✓)

Research Funding (Indicate source & amount (US \$) for academics. Science Research Council - approx. \$50,000 p.a.

Describe Nature/objectives of Research

Acoustics - problems of structure-borne sound transmission in buildings
Materials - curing of cement pastes
Management - layout planning of building spaces

Research Facilities (Describe briefly if any)

Controlled environment room
Acoustic suite
Materials Laboratory

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print)

(all publications in journals).

(✓) Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

Name of Institution University of Liverpool
Faculty/School Department of Building Engineering,
Address P.O. Box 147, Liverpool L69 3BX.

Name, Title of Contact Mr. B. Whitehead,
Name, Title of Respondent Senior Lecturer

Programme/s offered Degree Bachelor Master Ph.D. Non-degree Diploma Certificate Programme Specify

Year Programme Established 1965
Duration (years) - length of Programme 3 2 3
Availability (Indicate current student nos) Part-time - Full-time 72 4 2
Other (specify)
National Yr. 1=10, 2=18, 3=18, Yr. 3 1
Foreign Yr. 1=12, 2=7, 3=9, Yr. 1=3, Yr. 5 1
Admission Requirements Degree: - 3 GCSE A Level + English Language Qualification
Course Requirements - list of courses needed & thesis/project - As per syllabus
Scholarship, Fellowship A few undergraduate scholarships and postgraduate studentships are available.

Language of Instruction English
Total Numbers of Students Graduated National 20% Foreign 8% * Average each year
Funding: Government 80% Industry 5% Other (specify) Self 15% Research 25%
Staff Numbers: Totals (Indicate %s) Full Time (10) Part time (0) Industry, Instructors, Speakers ()

Industry Input (Please tick) Financial Administrative () Curriculum Development Scholarship, Bursaries, etc () Overseeing Body Industry Liaison ()
Course, Titles, Descriptions Indicate Text Title (if any) 1. Building Construction Engineering) Undergraduate courses)
2. Building Services Engineering)

(continued)

April 5, 1979

16

Name of Institution Institut für Baingeneurwesen IV, Tunnelbau und Baubetriebslehre

Faculty/School Technische Universität München
Address Arcisstraße 21, 8000 München 2, Fed. Rep. Germany

Name, Title of Contact Prof. G. Burkhardt
Name, Title of Respondent Prof. A. Schub

Programme/s offered Degree Bachelor Master Ph.D. Diploma Certificate Non-deg. Part of Other: Specialization Since 1965

Year Programme Established	Since 1930				
Duration (years) - length of Programme	2 years				
Availability (Indicate current student nos)	200			50	
Part-time					
Full-time					
Other (specify)					
National	2			1	
Foreign					
Admission Requirements	Bachelor			Bachelor	
Course Requirements - list of courses needed & thesis/project	7 Courses			11 Courses	
Scholarship, Fellowship	No			No	
Bursaries, etc. available					

Language of Instruction	German				
Total Numbers of Students Graduated in Specialization	National 700	Foreign 50			
Funding: (Indicate %)	Government 100 %	Industry -	Scholarship -	Research 70 %	
Other (specify)	German Research Foundation (DFG)			20 %	
Staff Numbers: Totals (Indicate #s)	Faculty Full Time (8)	Part time (-)	Industry, Instructors, Speakers (-)		
Industry Input (Please tick)					
Course, Titles, Descriptions	Financial Administrative () Curriculum Development				
Indicate Text Title (if any)	Scholarship, Bursaries, etc () Overseeing Body Industry Liaison ()				

1. Construction Management: Scheduling, Estimation, System Engineering etc.
2. Technology and Equipment: Constructions of Concrete, Earthmoving, Tunneling etc. (continued)

3. Legal Aspects

4. Project Management

5. Economics

6. Operations Research

Educational Programme Objectives:

Research (Please tick) Organizational (Applied) (x) Engineering (Hard) (x)

Research Funding (Indicate source & amount (US \$) \$ 50 000, - Government, Industry and DFG

Describe Nature/objectives of Research Stochastic Influences of Time and Cost by uncertain Activities in Construction.

Research Facilities (Describe briefly if any) Four Research Assistants, Terminal with CDC-Computer

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print)

() Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

3. Civil Engineering Project - none
4. Specifications and Estimating Means Cost Data Handbook
5. Contract Law and Labour Relations by Smythe and Sobermann
6. Construction Management - none

Educational Programme Objectives:

Research (Please tick) Organizational (Applied) (✓) Engineering (Hard)

Research Funding (Indicate source & amount (US \$)) N.R.C. \$20,000 yearly

Describe Nature/objectives of Research To develop new techniques of scheduling and cost control on construction projects

Research Facilities (Describe briefly if any) Computers and various testing laboratories

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print)

Construction Performance Control by Networks, H.N. Ahuja. Published by John Wiley and Sons.
Successful Construction Cost Control, H.N. Ahuja. Published by John Wiley and Sons. (In Press).

(✓) Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

Name of Institution Memorial University of Newfoundland
Faculty/School Faculty of Engineering and Applied Science
Address

Name, Title of Contact Hira AHUJA, Prof. John CHRISTIAN, Dr.
Name, Title of Responder Hira AHUJA, Prof. John CHRISTIAN, Dr.

Programme's offered Degree Bachelor Degree Non-deg. Non-deg. Part of Other:
Bachelor Master Ph.D. Diploma Certificate Programme Specify

Year Programme Established 1969
Duration (years) - length of 4 1/2
Programme

Availability (Indicate current student nos) Part-time Full-time Other (specify)
20

National Year 17
Foreign Year 3

Admission Requirements Junior Division
Course Requirements - list of Engineering Project Planning courses needed & thesis project Civil Engineering Project
Scholarship, Fellowship Specifications and Estimating
Bursaries, etc. available Contract Law and Labour Relations
Construction Management
Construction Courses within Civil Engineering Program

Language of Instruction English

Total Numbers of Students Graduated 160 National Foreign 10

Funding: Government 100% Administration 100% Scholarship 100% Research 100%
(Indicate %)

Staff Numbers: Totals Faculty Full Time (45) Part Time (5) Industry, Instructors, Speakers (6)
(Indicate #s) All Engrs.

Industry Input (Please tick) Financial Administrative () Curriculum Development
Scholarship, Bursaries, etc (✓) Overseeing Body Industry Liaison ()

Course, Titles, Descriptions Indicate Text Title (if any)

1. Engineering Project Planning
Construction Performance Control by Networks
by H.N. Ahuja
2. Construction Equipment and Methods
Construction Planning, Equipment and Methods
by Peurifoy (continued)

April 5, 1979

DEPARTMENT OF CIVIL ENGINEERING
UNIVERSITY OF TORONTO

Toronto, M5S 1A4, CANADA

Name, Title of Contact: GEORGE S. BIRRELL ASSOCIATE PROFESSOR

Name, Title of Respondent

Programme's offered: Degree Master Non-degree None Other None
Bachelor None Ph.D. None Diploma None Certificate None Programme None

Year Programme Established: 1977
Duration (years) - length of Programme: 2 years

Availability (Indicate current student nos): Part-time Approx 20 Full-time Approx 2 Other (specify) None

National Year 1977 Foreign Year 1977

Admission Requirements: UNIV. OF TORONTO ACADEMIC MASTERS LEVEL BY GRAD. COURSE

Course Requirements - list of courses needed & thesis/project: TOTAL 24 COURSES & EQUIVALENT MIN 4 COURSES IN CONSTRUCTION MAY 2 COURSE THESIS MAY 2 COURSE SPECIAL STUDY TOPIC

Scholarship, Fellowship Bursaries, etc. available: VERY FEW

Language of Instruction: ENGLISH

Total Numbers of Students Graduated: National 100% Foreign 0%

Funding: Government None Industry None Other (specify) UNIVERSITY OF TORONTO 100%

Staff Numbers: Totals (Indicate #s): Faculty Full Time (3) Part Time (2) Industry, Instructors, Speakers ()

Industry Input (Please tick): None Financial Administrative () Curriculum Development () Scholarship, Bursaries, etc. () Overseas Body Industry Liaison ()

Course, Titles, Descriptions: SOME DISCUSSIONS ARE AS SUITABLE

Indicate Text Title (if any): 1. CIV 1051 CONCRETE CONSTRUCTION THE INGREDIENTS, MAKING AND PLACING CONCRETE

2. CIV 1075 BUILDING SCIENCE SCIENTIFIC STUDY OF A BUILDING AS AN END PRODUCT IN RELATION TO ITS ENVIRONMENT

(continued)

3. CIV 1076 PROJECT MANAGEMENT AN OVERVIEW OF MANAGING A WHOLE PROJECT
4. CIV 1077 CONSTRUCTION ESTIMATING PROCESSES OF COST ESTIMATING FOR CONSTRUCTION WORK
5. CIV 1078 PLANNING & CONTROLLING CONSTRUCTION TECHNIQUES AND CONSIDERATIONS IN MANAGING THE CONSTRUCTION PROJECT
6. CIV 1079 CONSTRUCTION CONTRACT DOCUMENTS INGREDIENTS OF THE CONTRACTUAL PACKAGE AND LEGAL ASPECTS IN CONSTRUCTION

Educational Programming Objectives: TO EDUCATE PEOPLE IN ESSENTIALS OF MANAGEMENT OF CONSTRUCTION, BE THEY FUTURE MANAGERS OR DESIGNERS OR OWNERS AGENTS

Research (Please tick): Organizational (Applied) (X) Engineering (Hard) (X)

Research Funding (Indicate source & amount (US \$)): SOME OPERATING GRANTS FROM CANADIAN GOVERNMENT RESEARCH AGENCY

Describe Nature/objectives of Research: TO EXAMINE HEURISTIC CONCEPTS IN THE MANAGEMENT ACTIVITIES, FUNCTIONS AND ORGANISATIONS IN THE CONSTRUCTION PROCESSES

Research Facilities (Describe briefly if any): TORONTO HAS A LARGE COMPETENT HEURISTIC AS A LABORATORY

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print): BUILDING SCIENCE LABORATORY WORK ON THE BUILDING ENVELOPE, INSULATION DESIGN ATTRIBUTES AND PHENOMENA

Publications by Programme - only those that can be purchased (do not list articles in publications or out of print): BUILDING SCIENCE LABORATORY WORK ON THE BUILDING ENVELOPE, INSULATION DESIGN ATTRIBUTES AND PHENOMENA

() Please check if interested in having above listed in National Technical Information Service for world wide distribution. (Separate instructions will follow on procedures for submittal).

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April 5, 1979

-2-

19

Name of Institution Federal Institute of Technology (Polytechnische Technische Hochschule)
Faculty/School Institute for Construction-Planning and Management (Institute)
Address 8093 Zurich Hinggerberg
Name, Title of Contact Prof. Dr. A. Fregi (Chairman), Prof. Dr. C. H. H. H. H.
Name, Title of Respondent
Programme/s offered Degree Bachelor Degree Master Ph.D. Diploma Certificate Programme Specify
Year Programme Established Duration (years) - length of student nos Part-time Full-time Other (specify)
Availability (Indicate current student nos) 8-10 in our specialization, 80 in total semester-
National Foreign
Admission Requirements High school
Course Requirements - list of courses needed & thesis/project
Scholarship, Fellowship Bursaries, etc. available Low only

Dept. Eng 4

Research (Please tick) Organizational (Applied) (✓) Engineering (Hard) ()
Research Funding (Indicate source & amount (US \$)) Government & industry varying unit pay
Describe Nature/objectives of Research
new training: - management system on building sites
- financial model for investment policy of communities
Research Facilities (Describe briefly if any) - project management of big projects

Language of Instruction German
Total Numbers of Students Graduated National 90% Foreign 10%
Funding: Government Industry Other (specify)
Staff Numbers: Totals Prof. 2 Faculty Full Time () Part Time () Industry, Instructors, Speakers ()
(Indicate %s) 2 hours to 9 (6 full time, 3 part time.)
Industry Input Financial Administrative () Curriculum Development
(Please tick) Scholarship, Bursaries, etc () Overseeing Body Industry Liaison ()
Course, Titles, Descriptions of our specialization
Indicate Text Title (if any) 1. heavy construction
2. site planning, equipment & management

(continued)

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